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Remarks

Prior to entry of this amendment, claims 1-12 were pending in the application. Claims 1-12 stand rejected under 35 U.S.C. 112, 2nd paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-3 and 7-9 stand rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent 5,519,807 issued to Cellario et al. By this amendment, Applicant has added new claims 13-23. Accordingly, claims 1-23 are now pending in the application for further consideration by the Examiner.

Allowable Subject Matter

Applicant appreciates the Examiner's indication that claims 4 and 10 would be allowable (and also claims 5-6 and 11-12 by virtue of their dependency from claims 4 and 10) if claims 4 and 10 were rewritten to overcome the rejections under 35 U.S.C. 112, 2nd paragraph and to include all of the limitations of the respective base and intervening claims. Applicant would prefer reserving the right to do so at a later time if appropriate, but in the present response, Applicant prefers not amending these claims because Applicant believes that the remarks presented herein will establish that all claims are allowable in their present form.

Rejections Under 35 U.S.C. 112

Claims 1-12 were rejected under 35 U.S.C. 112, 2nd paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner indicated that the term "cyclical manner" used in claims 1 and 7 is vague and not clear. Applicants respectfully disagree and traverse this rejection.

Applicant's claim 1 recites "changing a gain parameter in the encoded speech signal in a variable and cyclical manner so that changes in gain are temporally dispersed". Applicant's claim 7 recites "changing a gain parameter in the encoded speech signal in a variable and cyclical manner over a plurality of sub-frames so that changes in gain are temporally dispersed over one or more sub-frames".

Applicant submits that the term "cyclical manner" as recited in claims 1 and 7 meets the threshold of providing a reasonable degree of clarity and particularity and that the Examiner has not provided any analysis as to why the term is vague and unclear. The Office Action simply includes a statement as to how the term has been interpreted for purposes of the examination (i.e., "cyclical manner" as representing any variation over given period of time"). Without more, Applicant respectfully submits that this statement does not provide any analysis as to why the

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term recited in the claims is vague and unclear. Definiteness is determined, among other considerations, by the content of the disclosure as well as a claim interpretation given by one possessing ordinary skill in the relevant art. In both respects, Applicant submits that the term "cyclical manner" meets the threshold of providing clarity and particularity.

Applicant's disclosure contains numerous references through exemplary embodiments of the "cyclical manner" in which the gain parameter is changed (see, e.g., FIG. 4C, page 8 on lines 1-30, page 9 on lines 26 through page 10, line 29). In one such example, cyclical is described by the recurring sequence of the pattern of the gain index increments (see, e.g., page 8, lines 21-27). Applicant therefore submits that the term cyclical, as recited in claims 1 and 7, is being used according to its well understood meaning and not just as "any variation over given period of time" as suggested in the Office Action.

In view of the foregoing, Applicant respectfully submits that claims 1-12 are not indefinite and therefore requests that the rejection as to claims 1-12 be withdrawn accordingly.

Rejections Under 35 U.S.C. 102(b)

Claims 1-3 and 7-9 were rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent 5,519,807 issued to Cellario et al. (hereinafter referred to as "Cellario et al."). This ground of rejection is respectfully traversed for at least the following reasons.

Cellario et al. appears to be directed to quantizing excitation gains in speech coders and does not appear to provide any teaching or suggestion about the modification of an encoded speech signal to produce an altered encoded speech signal. Moreover, the teachings in Cellario et al. appear to describe how to determine an excitation gain that minimizes an error criterion, such that the decoded speech signal closely resembles the original speech signal. In contrast, Applicant's claimed invention is directed toward the modification of an existing excitation gain to alter the encoded speech signal.

With regard to the specific cited portions of the reference in the Office Action, Cellario et al. (at Col. 4, lines 28-39) describe how to derive an optimum gain for possible innovation words to minimize an error criterion. This is not the same as modifying an existing excitation gain as claimed by Applicant. Similarly, Cellario et al. (at Col. 6, lines 25-29 and lines 33-37) describe only how the excitation gain and its index is determined given an excitation. In Col. 7 at lines 52-56, Cellario et al. describe bit rate reduction by transmitting differential information instead of absolute information to remarkably reduce the number of bits to be dedicated to gain coding. Again, none of these teachings are the same as what Applicant is now claiming with regard to the modification of the level (e.g., excitation gain) of a speech signal.

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As set forth in Applicant's claim 1, a method is provided for modifying the level of a speech signal by changing the gain parameter in the encoded speech signal in a variable and cyclical manner so that changes in gain are temporally dispersed. The present Office Action does not establish with any particularity how the teachings by Cellario et al. show each and every element of this claim. In particular, Cellario et al. do not at all teach or suggest changing the gain parameter in a variable and cyclical manner so that changes in gain are temporally dispersed. Similarly, the teachings in Cellario et al. do not all disclose or otherwise suggest changing a gain parameter in the encoded speech signal in a variable and cyclical manner over a plurality of sub-frames so that changes in gain are temporally dispersed over one or more sub-frames, as recited in Applicant's claim 7.

By temporally dispersing the change in the amount of gain applied to the signal, Applicant's claimed method enables gradual changes in the output level of the signal to better match actual signal conditions. In particular, the gain can be set with a resolution that allows for closely matching the smallest perceivable differences in the speech signal, e.g. the smallest perceivable sound level (loudness) difference. The teachings in Cellario et al. do not describe any such mechanism or method for modifying a signal which can achieve this same result, which is understandable given that Cellario et al. were not addressing the same problem as Applicant.

Because Cellario et al. neither teach nor suggest each and every element of Applicant's independent claims 1 and 7, these claims are therefore not believed to be anticipated by Cellario et al. Accordingly, Applicant respectfully submits that claims 1 and 7 are allowable over Cellario et al. and requests that the rejection under 35 U.S.C. 102(b) be withdrawn.

Since independent claims 1 and 7 are allowable over Cellario et al., so too are dependent claims 2-6 and 8-12, all of which include all the elements from their respective base claims.

New Claims

By this amendment, Applicant has added new claims 13-23 for consideration by the Examiner, including two new independent claims 13 and 18. For similar reasons set forth above, as well as for other novel features therein, Applicant respectfully submits that new claims 13-23 are also allowable in their present form.

Conclusion

It is respectfully submitted that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited. If, however, the Examiner

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still believes that there are unresolved issues, he is invited to call Applicant's attorney so that arrangements may be made to discuss and resolve any such issues.

If any additional fees are due with respect to this amendment, please charge them to Deposit Account No. 12-2325.

Respectfully submitted,



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